

LOW DIELECTRIC CONSTANT STI WITH SOI DEVICES

Abstract

Techniques of shallow trench isolation and devices produced therefrom are shown. The techniques of shallow trench isolation utilize foamed polymers, cured aerogels or air gaps as the insulation medium. Such techniques facilitate lower dielectric constants than the standard silicon dioxide due to the cells of gaseous components inherent in foamed polymers, cured aerogels or air gaps. Lower dielectric constants reduce capacitive coupling concerns and thus permit higher device density in an integrated circuit device. The shallow trench isolation structures are used on a variety of substrates including silicon-on-insulator (SOI) substrates and silicon-on-nothing (SON) substrates.